Remarks

The Examiner has objected to the Drawings under 37 CFR 1.83(a) stating that the "the at least one wire extending from said first link and said second link (claims 1 and 36) must be shown or the feature(s) canceled from the claim(s). The drawings only appear to show that the cable extends through the first link 13 only." (Official Action 9/13/07, p. 2) Applicant respectfully disagrees. For example, Figures 4 and 10 both show control wire 28 extending through bores 25 located in multiple links. Accordingly, Applicant respectfully submits that the drawings do illustrate the cables extending between multiple links.

The Examiner has further rejected the claims over U.S. Patent No. 3,266,059 (Stelle) in view of U.S. Patent No. 3,504,902 (Irwin et al.). Applicant respectfully disagrees with this rejection.

Claim 1 recites "the layer is maintained under compression by said at least one wire such that a bending movement between the members produces shear movement within the elastomer and substantially no compressive movement as a result of the relative movement between the said first and said second members." Claim 36 recites "said elastomeric material maintained under compression by said at least one wire such that substantially no compressive deformation of said elastomeric material occurs during rotation of said third link about the point of rotation relative to said first link; and said elastomer material permitting shear deformation of said elastomer material during articulation of the assembly."

The Examiner has cited Stelle for generally teaching a flexible arm, but states that "Stelle does not disclose a resilient elastomer disposed between said first and second members" but that "Irwin teaches a resilient elastomer (C3/L43-53) bearing disposed between two members (11 and 12)." (Official Action 9/13/07, pp. 3-4) The Exam-

iner further states that it "would have been obvious . . . to modify Stelle and provide a resilient elastomer bearing disposed between two members . . . as taught by Irwin, for the purpose of providing a flexible joint between two members that can accommodate lateral displacement as well as be stable against buckling thus providing a predictable result of stabilizing the robot arm." (Official Action 9/13/07, p. 4) Applicant respectfully disagrees.

For example, Irwin is directed toward "a swivel joint connecting a nozzle or exiting cone to a body of a rocket engine" with figures 1 and 2 illustrating "a rocket engine and nozzle connection joint 10 consisting generally of a nozzle cone connection ring 11 and an engine connection ring 12." (Col. 2, lns. 69-71 & Col. 3, lns. 3-5) Irwin, however, specifically allows for linear displacement of the bearing surfaces of the nozzle connection ring relative to the engine connection ring. Irwin states that "the bearing faces 13 and 14 move relative to each other" and that this "movement may be . . . linear." (Col. 3, lns. 25-28) Irwin further defines linear movement as "the result of moving the two faces directly away from or towards each other." (Col. 3, lins. 30-32) In fact, linear movement of the bearing faces relative to each other is illustrated in Figure 4 with the right sides of the bearing surfaces are moved away from each other, while the left sides of the bearing surfaces are moved toward each other variously compressing and expanding the bearing ring 15. This, however, directly contradicts the limitations of claims 1 and 36.

Accordingly, not only does Irwin fail to teach or disclose an elastomer that allows substantially no compressive movement or deformation as variously recited in claims 1 and 36, Irwin actually teaches away from this limitation teaching that the bearing ring is compressible in operation.

Applicant further respectfully submits that the bearing ring taught in Irwin could not be adapted for use with the flexible joint taught in Stelle.

For example, Irwin teaches that the "present invention . . . provides for laminated bearing capable of accommodating lateral displacement between the ends of the bearing stack which . . . is provided with a relatively thick stabilizing ring or rings bonded intermediate the ends of the bearing stack." (Col. 1, lns. 62-68; Col. 3, lns. 62-65) Placement of these "relatively thick stabilizing rings" between the links taught in Stelle would not result in a functioning product. It is well settled that if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP 2143.01; *In re Gordon*, 733 F.2d 900, 221 USPQ2d 1125 (Fed. Cir. 1984). In the present case, if the device of Irwin were inserted in between the links of Stelle, one would have first link with "alternating layers of bearing material and elastomer bonded together" with the "layers built up into a bearing stack" and "at least one thick non-elastomeric layer bonded intermediate to the ends of said stack." (Col. 5., lns. 64-68) As this would not result in the presently claimed invention, nor in a functioning device, such a combination cannot be fairly characterized as "obvious."

Additionally, a rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 (2007); *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282 (1976). In this case, the respective function of the non-elastomeric "relatively thick stabilizing ring" provides stabilization between the swivel joint connecting a nozzle or exiting cone to a body of a rocket engine. While the Examiner has stated that the bearing will stabilize the robot arm against buckling and provide a predictable result, the Examiner has not identified any evidence on the record of how the combination would increase predictability or even function. In addition, the stabiliza-

tion problem encountered by swivel joints connecting nozzles to bodies of rocket engines is simply not applicable to a robot arm.

The combination of Stelle with Irwin would not function for yet another reason. When looking at the teachings of Stelle, Applicant has noted that Stelle teaches the "compressive forces of the balance springs 120 cooperate with the tension spring 100 . . . to prestress the flexible joint in a first position." (Col. 4, lns. 42-45.) Therefore, Stelle teaches that compressive force is generated by the balance springs and the tension springs, which facilitates movement of the arm but also has a tendency to bias the arm back to the original position. However, if one were to completely isolate the first member from the second member by placing a compressed elastomer therebetween, the springs would no longer function because the elastomer would crush them.

It is respectfully requested that the Examiner withdraw the rejections of the presently pending claims based on a combination of Stelle with Irwin as the pending claims can not be obvious in view of this suggested combination. Claims 1-2, 4, 6-10, 12-13, 15, 17-26, 28-33 and 36, are in order for allowance and early notice to that effect is respectfully requested.

Respectfully submitted,

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